

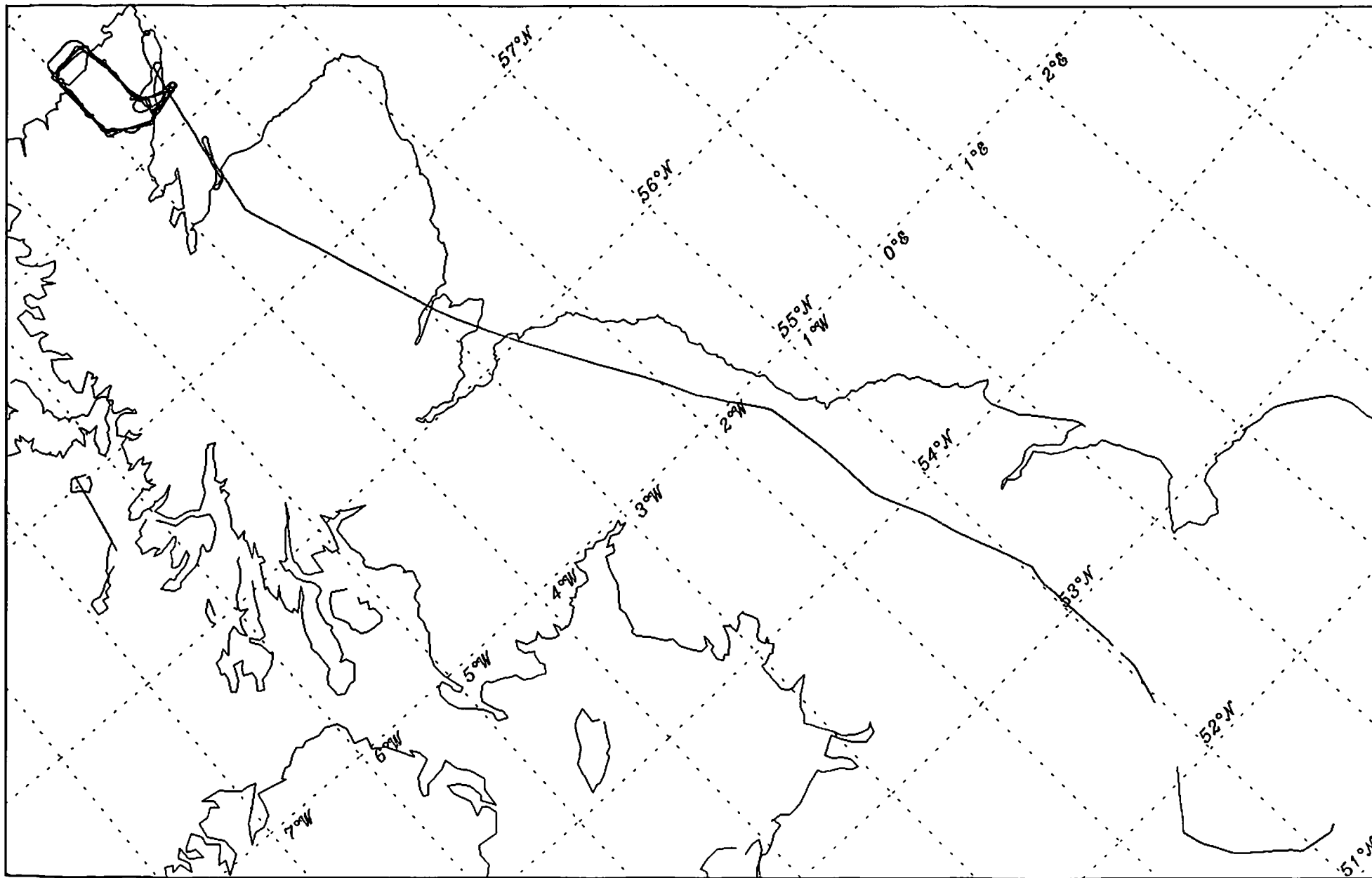
FLIGHT REPORT A257  
TIGER  
27/5/93

7  
FLIGHT REPORT A258 27/05/93 TIGER

---

Time 1	E.M.	Time 2	E.M.	Event	Height	Heading	
10:05:05				TAKE OFF FARNBOROUGH			
				Transit to Kinloss at FL090			
11:31:57	( 3)	11:45:17	( 6)	PROFILE P1	FL090 - 50ft	355/020	
11:51:51				LAND AT RAF KINLOSS			
12:03:11				TAKE OFF RAF KINLOSS			
12:05:34	( 7)	12:13:28	( 8)	PROFILE P2	500' - FL050	020	
12:23:42	( 9)	12:31:16	(15)	RUN 1.1	FL060	007	
12:37:58	(18)	12:43:58	(22)	RUN 1.2	FL060	180	Land
12:44:33	(23)	12:51:04	(26)	RUN 1.3	FL060	130/090	Land
13:00:28	(30)	13:06:43	(33)	RUN 2.1	1500' agl	015	Land
13:06:43	(33)	13:10:11	(36)	RUN 2.2	1500' agl	285	Sea
13:11:35	(37)	13:17:54	(41)	RUN 2.3	1500' agl	180	Land
13:25:10	(44)	13:30:45	(47)	RUN 2.4	1500' agl	090/270	Sea
13:34:08	(49)	13:40:09	(52)	RUN 2.5	1500' agl	015	Land
13:41:06	(53)	13:43:55	(56)	RUN 2.6	1500' agl	285	Sea
13:45:21	(57)	13:51:42	(60)	RUN 2.7	1500' agl	190	Land
13:58:22	(61)	14:03:53	(64)	RUN 2.8	1500' agl	090/300	Sea
14:05:52	(65)	14:12:58	(68)	RUN 2.9	1500' agl	015	Land
14:13:45	(69)	14:18:21	(71)	RUN 2.10	1500' agl	270	Sea
14:18:21	(71)	14:25:10	(75)	RUN 2.11	1500' agl	180	Land
14:30:26	(76)	14:34:40	(79)	RUN 3.1	500' agl	090/270	Sea
14:36:27	(80)	14:43:20	(84)	RUN 3.2	500' agl	010	Land
14:43:52	(86)	14:48:12	(88)	RUN 3.3	500' agl	270	Sea
14:51:29	(89)	14:57:35	(93)	RUN 3.4	500' agl	180	Land
15:03:25	(94)	15:08:06	(98)	RUN 3.5	500' agl	090/270	Sea
15:09:44	(100)	15:16:43	(101)	RUN 3.6	500' agl	010	Land
15:18:10	(104)	15:22:34	(107)	RUN 3.7	500' agl	270	Sea
15:22:34	(107)	15:29:46	(111)	RUN 3.8	500' agl	180	Land
15:38:00	(112)	15:42:00	(117)	RUN 4.1	250' agl	010	Land
15:43:30	(118)	15:47:15	(123)	RUN 4.2	250' agl	190	Land
15:49:01	(124)	15:54:57	(126)	RUN 4.3	250' agl	010	Land
15:56:39	(127)	16:07:34	(129)	RUN 5.1	1500' agl	180	Land
16:17:03				LAND AT WICK			

A257 27-MAY-93 GPS data  
Times:08:10:02-16:24:33



TIGER II

Methane emission experiment

MAY-JUNE 1993

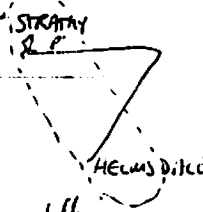
Boundary layer budget study

Study area

Cathness-Sutherland  
(also) aircraft experiment

Thursday 27 May

Objective -

determin of methane emission  
from point wetlands over regional flux

10 bags per circuit

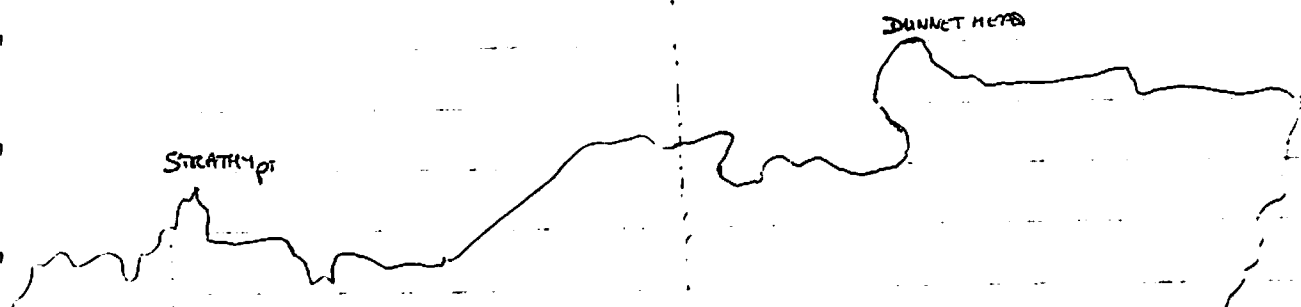
1 x 500', 3 x 1000' 2 x 500'

Event number	GMT	BAG	Location	comment
Row 1. 10	12 2459	H31	start bag 1. 6k	cellat ~ 6 R ft, 1831
11	27.04	H32	" 1	
12	28 10	H33		1819
13	29 06	H34		1820
14	30 15	H35		1822
16	31 20	H36		↑ 1847
17	32 50	H37	over water - N.	20 sec per bag 1844
18	38 30	H38		↓ 1828
20	39 50	H39		30 sec per bag 1836
21	41 40	H13	over water puts	1858
Row 2. 27	54 00	H41	over sea	1500 ft 1870
28	55 12	H42	"	1500 ft 1866
2.1 29	13 00 12	H43	OVER LAND	" 1871
30	01 32	H44	"	" 1842
32	02 50	H45	over "	" 1843
2.2 34	08 12	H46	OVER SEA	" 1850
35	09 48	H47	"	Wind E/NE 1844
2.3 38	13 44	H48	OVER LAND	" 1848
39	14 48	H49	"	" 1850
40	16 48	H50	"	" 1843
2.4 45	25 32	H51	OVER SEA	1500 ft 1842
46	26 50	H52	"	" 1841

Event number		GMT	BAG	LOCATION	COMMENT	
2.5	48	33 13	H 53	OVER LAND	1500 ft	1852
	50	34 25	H 54	"	"	1851
<del>2.5</del>	51	38 30	H 55	OVER " SITE	"	1852
2.6	52/4	41.40	H 56	OVER SEA N	"	1854.8
	53	43.02	H 57	"	"	1847
2.7	58	47.37	H 58	OVER LAND	"	1855
	59	49.00	H 59	"	"	1846
	60	51 30	H 60	"	"	1848
2.8	62	59 50	H 61	OVER SEA	1500 ft	1850
	63	14 00 50	H 62	"	"	1847
2.9	65	06 00	H 63	OVER LANDS	"	1850
	66	06 58	H 64	"	"	1848
	67	09 30	H 65	OVER LAND	"	1865
2.10	69	14 10	H 66	OVER SEA N	1500 ft	1861
	70	<del>15</del> 32 <sup>00</sup>	H 67	"	"	1857
2.11	72	14 21 20	H 68	OVER LAND N	1500 ft	1852
	73	23 -00	H 69	"	"	1848
	74	24 30	H 70			
	77	14 31 30	H 71	over Sea	500 ft	① 1850
	78	14 32 50	H 72	"	"	1855
	80	14 38 48	H 73	over land S	500	1872
	82	14 37 55	H 74	"	"	1848 <del>1874</del>
	83	14 39 28	H 75	"	500	1854
	84	14 45 27	H 76	over Sea	500	1845
	87	14 46.00	H 77	" "	"	
	90	14 53.45	H 78	over land N	500	
	91	14 54 50	H 79	" " "		1865
	92	14 55 20	H 80	" " "	500	

Event marker	GMT	Bag	Location	Comment.
95	1504.00	81	over Sea	500 ft 1863
96	1505.07	82		500
99	1509.50	83	over land	500 - 1863
01	1510.20	84	" "	500 1856
02	1510.40	85	" "	500 1863
05	1518.20	86	over Sea	500 1857
06	1518.55	87	over Sea	500 1859
08	?	88	over land N	500 Bag filling <sup>1851</sup> over
09	?	89	" "	500 green <sup>1851</sup>
10	1528.00	90	" "	500 1850
13		91	over bag	} 250 R1 <sup>1848</sup> <sup>43</sup> <sup>1843</sup>
14		92		
15		93		
16		94		
17		95		
18		96	}	250 R2 <sup>1845</sup> <sup>1844</sup> <sup>1843</sup> <sup>1847</sup> <sup>1842</sup> <sup>1850</sup>
19		97		
20		98		
21		99		
22	1547.50	100		

2 BAGS OVER SEA  
(6 to 10 min)



8 bags

3 bags

EXPERIMENTAL SITE

50 km 10 min

START

70 km  
16 min

2 BAGS OVER SEA  
6 min

~30 km over sea  
5 km min<sup>-1</sup>

FLIGHT REPORT:

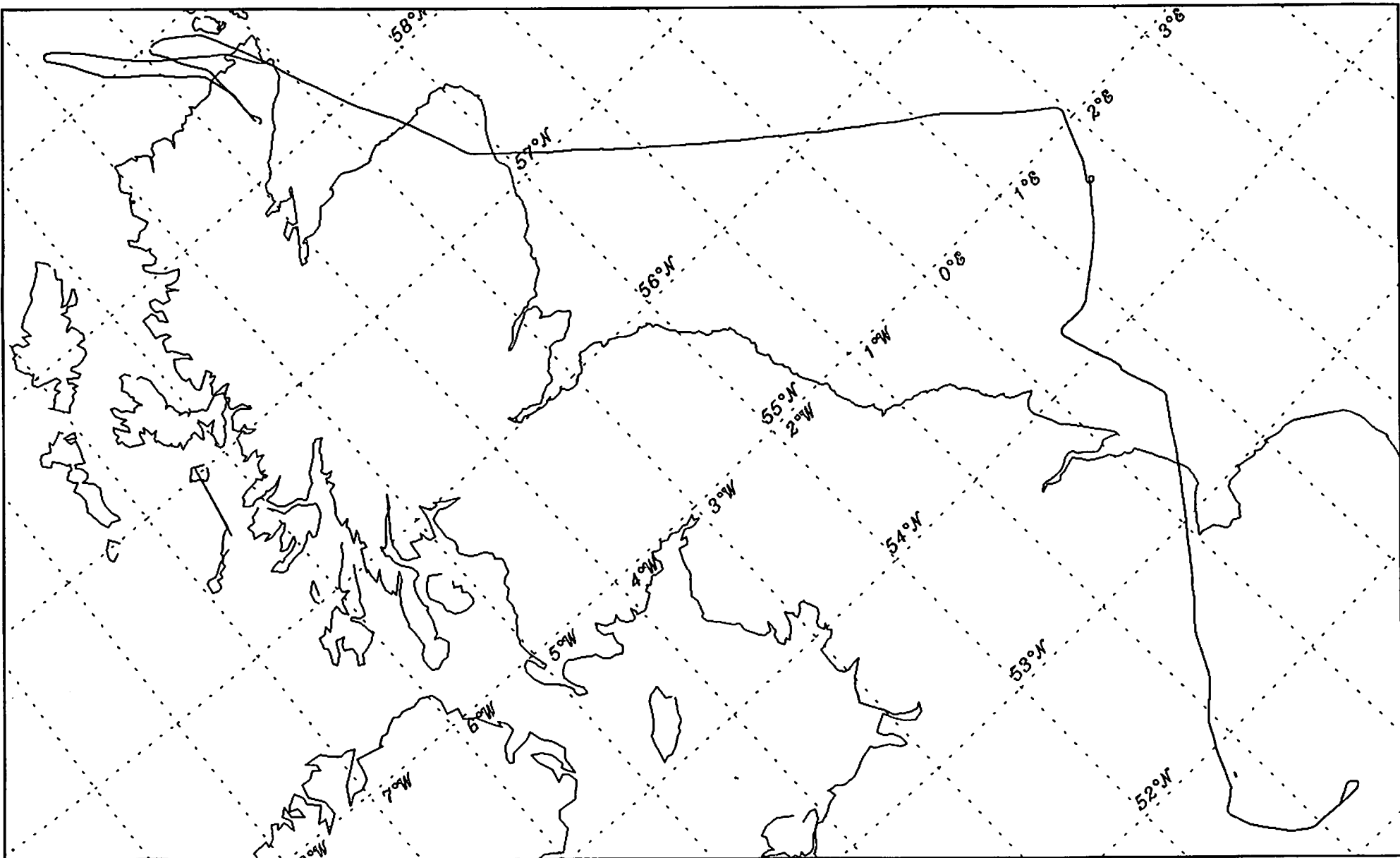
FLIGHT REPORT A258 28/05/93 TIGER

-----

Time 1	E.M.	Time 2	E.M.	Event	Height	Heading	
09:57:35				TAKE OFF WICK			
10:04:55	( 1)	10:10:29	( 2)	PROFILE P1	50ft - FL060	320	
10:12:00	( 3)	10:20:55	(14)	RUN 1	FL060	330	Sea
10:25:08	(15)	10:26:58	(19)	RUN 2	500'	160	Sea
10:36:51	(20)	10:44:03	(30)	RUN 3	500' agl	175	Land
10:45:01	(31)	10:51:59	(40)	RUN 4	2000' agl	345	Land
10:54:02	(41)	10:58:50	(46)	RUN 5	2000'	340	Sea
		Transit to point A at FL070 (55.559N 0.203E)					
11:49:45	(49)	11:58:27	(59)	RUN 6	FL075	135	Sea
12:16:58	(60)	12:29:02	(61)	PROFILE P2	FL075 - 50 ft	225/240	Sea
12:31:48	(62)	12:40:14	(81)	RUN 7	500'	275/170	Sea
13:34:20				LAND AT FARNBOROUGH			



GPS data  
Times:08:41:51-13:38:26



28 May

1993

TIGER II methanol  
Experiment II

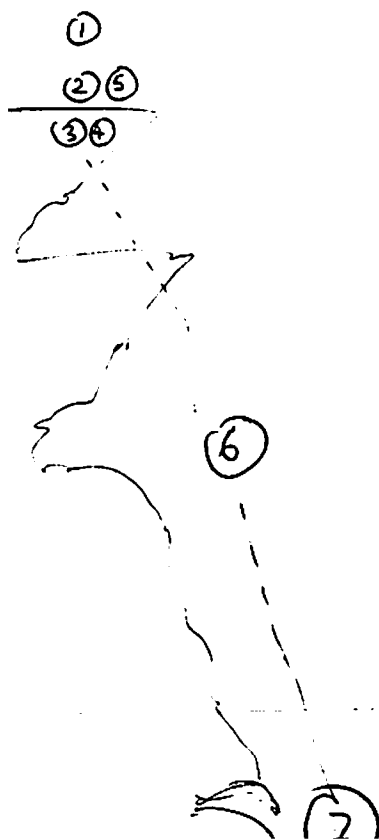
Objective

(1)	10 BAGS	clean air above boundary layer over sea	6000'
(2)	3 BAGS	over sea	500'
(3)	7 BAGS	over bay	N → S run, 500'
(4)	7 BAGS	over bay	S → N run <del>2000</del>
(5)	3 BAGS	over sea (W coast)	2000'

TRANSIT to N. Sea off E coast Scotland

(6) 10 Bags at cruising altitude 8000' ?  
(5' scumms)

(7) 20 Bags off Lincolnshire coast 500'.



Event number	GMT	BAG	Location	Comment
Run 1	10 12 10			
4	10 12 12	41	OVER SEA	6000' over sea
5	13 12	42	"	"
6	13 52	43	"	"
7	14 33	44	"	"
8	15 18	45	"	"
9	16 24	46	"	"
10	17 10	47	"	"
11	18 02	48	"	"
12	18 40	49	"	"
13	19 13	50	"	"
Run 2.	10 25 08			
16	10 25 12	51		over sea 500 ft.
17	25 56	52		"
18	28 23	53		"
20	10 26 51	-		
21	32 23	54	OVER FARM	over bog 500
22	38 29	55	OVER BOG	
23	38 55	56	"	
24	39 19	57		
25	39 42	58		
26	40 00	59		
27	40 21	60		
28.	41 35	61	FILLED TWO MORE BAGS OVER BOG RS-W TOO QUICK!	OVER SITE 500 ft.
29	41 54	62		"
Run 4	10 45 01			
32	46 58	63		OVER BOG 2000 ft.
32	47 28	64	OVER SITE	
34	47 55	65		
35	48 20	66		
36	48 44	67		

Event marker	GMT	BAG	LOCATION	COMMENT
		67		over bay
37	49 10	68		OVER Bay <del>se</del>
38	49 24	69		OVER Bay.
39	49 44	70		OVER Bay
Row 5. 41	10 54 02			
43	57 23	71		over sea. 2 <del>2000</del> ' (A)
44	57 41	72		"
45	58 14	73		"
Row 6. 69	11-49-45.			
50	11-50-10	74	OVER SEA	OVER SEA <del>2000</del> ft.
51	50 51	75	"	7500 ft.
52	51 31	76	"	"
53	52 24	77	"	"
54	53 21	78	"	"
55	54 20	79	"	"
56	55 22	80	"	"
57	56 21	81	"	"
58	57 21	82	"	" 500' 1/2 (unclassified)
Row 7.				
62	12-31-48	<del>82</del>		OVER SEA.
63	31-54	83		
64	32-18	84		
65	32 44	85		
66	33 08	86		
67	33 34	87		
68	34 00	88		
69	34 25	89		
70	34 55	90		

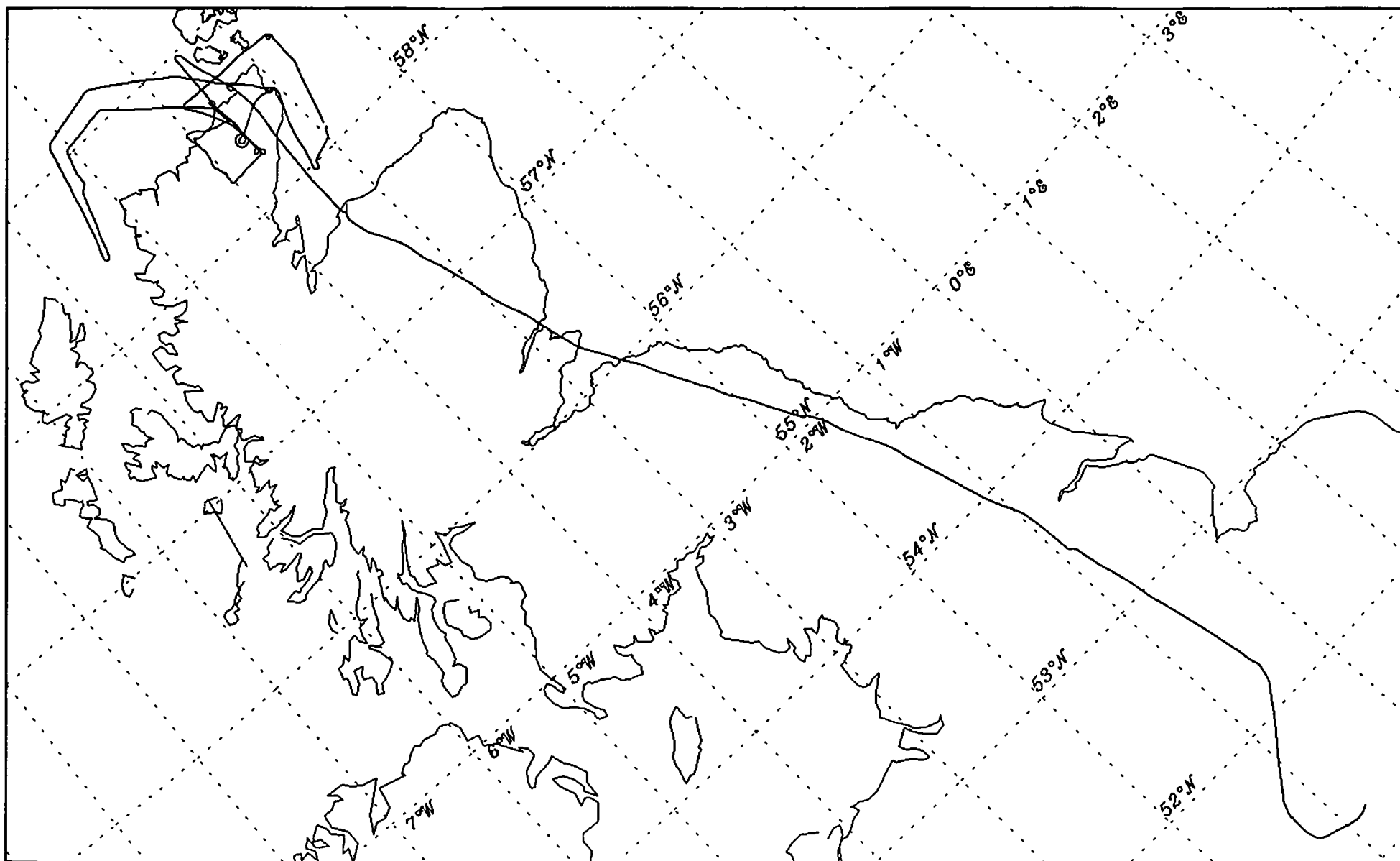
Event number	GMT	BAG	LOCATION	COMMENT
71	35-35	91		500' over sea
72	36-04	92		Luicclushie
73	36-30	93		
74	36-58	94		
75	37-28	95		
76	37-55	96		
77	38-28	97		
78	38-59	98		
79	39-23	99		
80	39-49	100		

FLIGHT REPORT A259 03/06/93 TIGER

---

Time 1	E.M.	Time 2	E.M.	Event	Height	Heading	
10:30:23				TAKE OFF FARNBOROUGH			
				Transit to Lossimouth at FL085			
11:52:46	( 3)	11:58:59	( 4)	PROFILE P1	FL085 - 2000'	350	
12:02:15				LAND AT RAF LOSSIMOUTH			
12:21:11				TAKE OFF RAF LOSSIMOUTH			
12:24:46	( 5)	12:36:01	( 6)	PROFILE P2	50ft - 6000'	010	
12:51:42	( 7)	12:59:14	( 8)	RUN 1	500' agl	180	intercom
13:00:24	( 9)	13:06:47	(10)	RUN 2	2000' msl	005	intercom
13:11:06	(12)	13:15:20	(17)	RUN 3	250' agl	185	Land
13:18:08	(18)	13:20:39	(24)	RUN 4	100' agl	007	Land
13:26:09	(25)	13:33:01	(31)	RUN 5	500' agl	180	Land
13:37:33	(36)	13:43:51	(41)	RUN 6	500' agl	007	Land
13:45:27	(42)	13:55:09	(51)	RUN 7	100' msl	330	Sea SS:3
14:02:21	(52)	14:14:14	(60)	RUN 8	500' msl	205	Sea
14:15:36	(61)	14:46:03	(75)	RUN 9	500' msl	025/145	Sea
14:56:59	(76)	15:06:32	(87)	RUN 10	500' msl	210	Sea
15:12:43	(89)	15:21:34	(96)	RUN 11	500' msl	030/360	Sea
15:24:58	(97)	15:34:21	(98)	PROFILE P3	50ft - FL060	280	Sea SS:4/5
15:36:16	(99)	15:47:05	(111)	RUN 12	FL060	165/270	Sea/Land
15:54:55				LAND AT WICK			

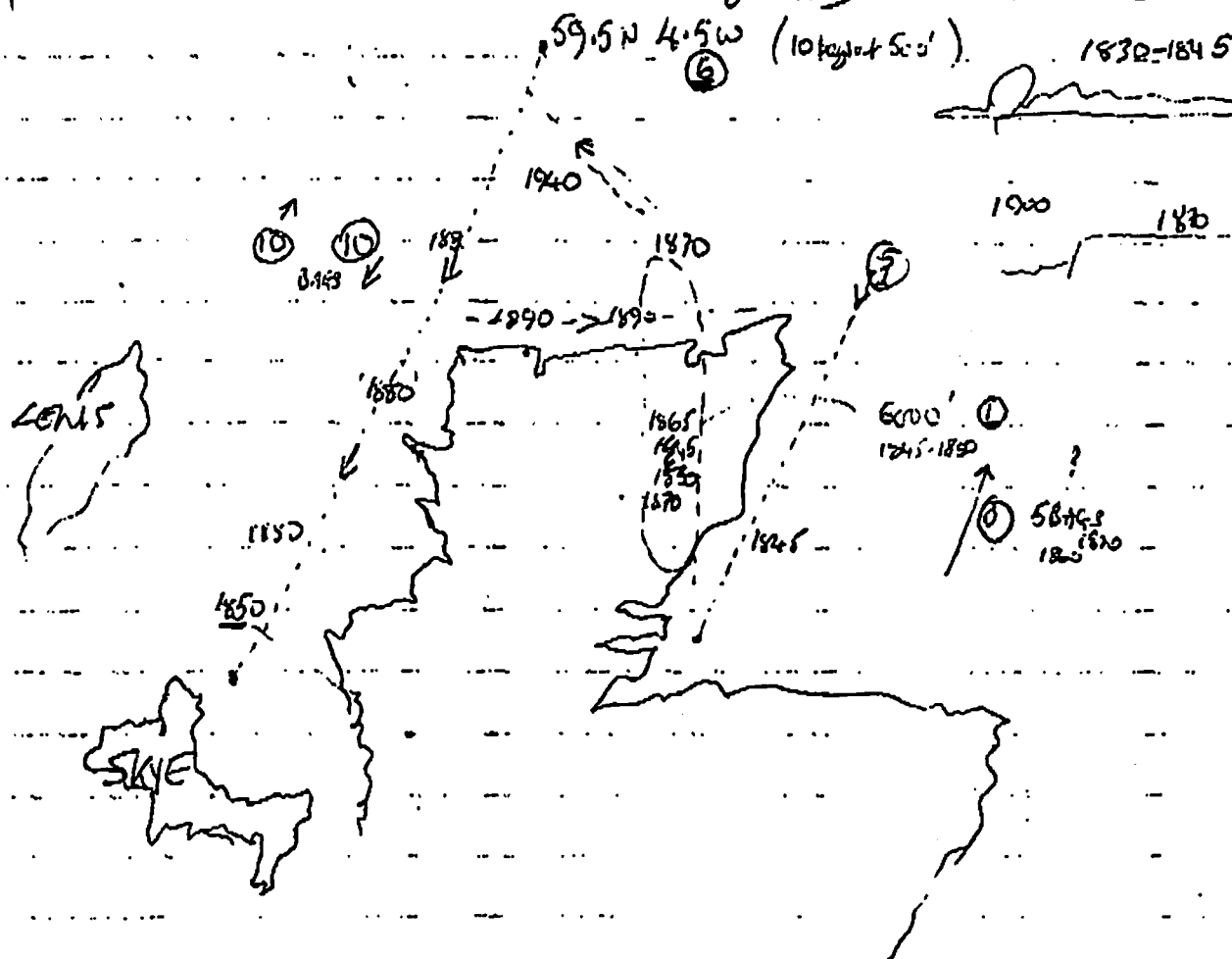
A259 03-JUN-93 GPS data  
Times:08:21:58-16:01:33



HERC 03

3rd June 1993

CH4 Coulhness and Sutherland budgets



① 6000' CIRCUIT 7 SITE + STRATHY 10 bags → BACKSTRAIN

② INTERCOMPARISON WITH I STRUMBERG CESSNA

③ 500' CIRCUIT 7 SITE 10 BAGS  
STRATHY 000 10 BAGS  
GREENSBAY 10 BAGS

④ LOW LEVEL SITE 250' 10 BAGS

⑤ out to 59.5 N 4.5 W 10 BAGS 500' 10 BAGS

⑥ CAPE WRATH to GREENSBAY POINT 500' 10 BAGS

⑦ Return to 59.5 N - 4.5 W → DUNCANBY HEAD → SAMPLE



EVENT	GMT	BAG	LOCATION	COMMENT
94	516.49	31		OVER SEA CONT of RUN 11.
100	153844	32	RUN 12 153616	{6000' Background}
101	163940	33		OVER SITE.
102	4010	34		
103	4053	35		1845-1850
104	4204	36		
105	4255	37		
106	4323	38		
107	4357	39		
108	4450	26		
<del>109</del>	<del>4510</del>	<del>26</del>		
11	131027	41	RUN 3 131106	over bog (1) 2500' N↓
13	131130	42		
14	131212	43		
15	131247	44		
16	131350	45		
19	131810	46	RUN 4 131808	100ft
20	131840	47		over bog (2) 2500' S↑
21	131909	48		
22	131934	49		
23	132004	50		
26	132705	51	RUN 5 132609	500 ft. N↓
27	2739	52	WIND 140° 20kts	
28	2802	53		over bog (2)
29	2836	54		
30	2905	55		
32	3521	56	RUN 6 133733	S.
33	3542	57		
34	3626	58		
35	3704	59		
37	3741	60		

GWT	GWT	BAG	LOCATION	Comments
38	39 00	61		500 ft OVER SITE. <del>100 ft</del> 50 ft
39	39 29	62		
40	39 56	63		
43	46 00	64	RUN 7 13 45 27	ON TRANSIT TO 59.5 N 4.5 W BACKGROUND 100 ft
<del>44</del>	46 31	65		OVER SEA. heads N.
<del>45</del>	47 06	66		
46	47 50	67		
47	48 29	68		
48	49 24	69		
49	49 56	70		
53	14 02 27	71	RUN 8 14 02 21	500 ft 59.5 N 5 W
54	14 03 47	72		CARE WARM ↓ to SKYE N
55	14 05 32	73		
56	07 32	74		
57	09 32	75		
58	11 32	76		Sampling in rain
59	13 50	77		"
62	14 17 12	78	RUN 9 14 18 36	Turn and head North start sampling when rain stops.
63	22 44	79	WIND 230°	
64	24 40	80		
65	26 43	81	WIND	
66	28 35	82	185 KTS	
67	30 37	83	WIND 154	
68	32 37	84		
69	34 36	85		
70	36 37	86	140° WIND	
71	38 33	87		
72	40 35	88		
73	14 42 34	89	154 KTS	
74	44 35	90		BAG SPLIT. NO SAMPLE

SHEET	GMT	BAG	LOCATION	COMMENT
77	57 00	91	RUN 10 14 66 59	off E coast 500' W of NW
78	58 00	92		
79	59 00	93		
80	15 00 03	94		
81	01 01	95		
82	02 02	96		
83	03 00	97		
84	04 00	98		
85	05 01	99		
86	06 02	100		
89	12 43	27	RUN 11 15 12 39	
90	13 30	28		
91	14 55	29		
93	15 45	30		
09	15 45 12	BB5		Cont of Run 12
10	15 46 46	END.		
				6000 ft

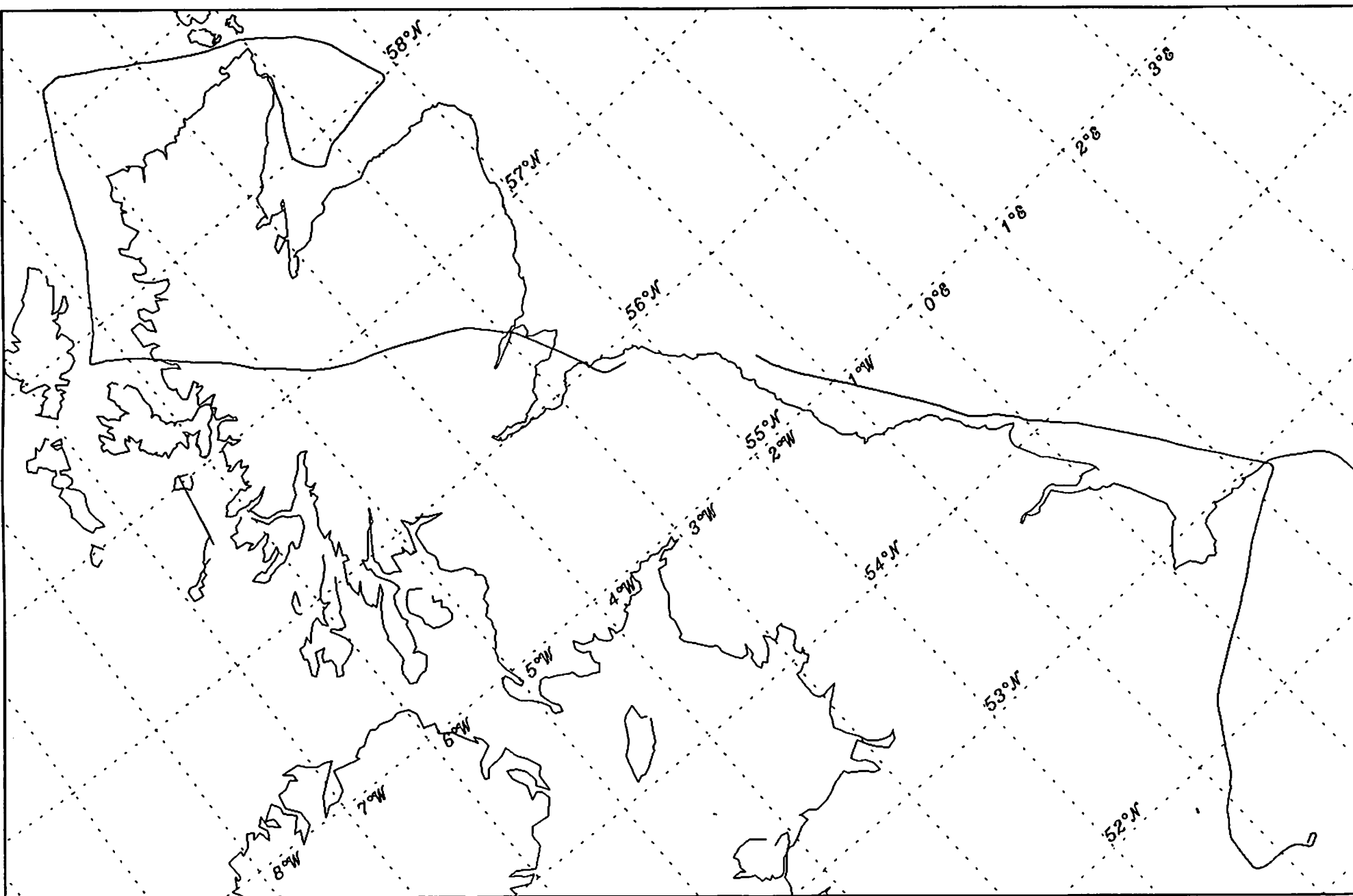
FLIGHT REPORT A260 04/06/93 TIGER

---

Time 1	E.M.	Time 2	E.M.	Event	Height	Heading		
09:52:06				TAKE OFF WICK				
09:54:50	( 1)	10:06:22	( 2)	PROFILE P1	50ft -	FL070	202	Sea SS:2/3
10:07:25	( 3)	10:12:58	(14)	RUN 1	FL070		065	Sea
10:16:57	(15)	10:25:49	(26)	RUN 2	500'		345/225	Sea
10:32:00	(27)	10:49:08	(39)	RUN 3	500'		300	Sea
10:52:17	(40)	11:19:03	(53)	RUN 4	500'		220	Sea
11:20:32	(54)	11:27:58	(55)	PROFILE P2	50ft -	FL050	215	Sea 500/min
11:28:45	(56)	11:30:58	(57)	restart P2	FL050 -	FL075	150	Sea 1000/"
		Transit to North Sea			FL075			
12:16:34	(59)	12:19:00	(64)	RUN 4	FL075		135	Sea
12:20:35	(65)	12:28:46	(66)	PROFILE P3	FL075 -	50 ft	165	Sea SS 2/3
12:30:28	(67)	13:12:20	(92)	RUN 6	500'		155	Sea
13:13:14	(93)	13:21:09	(94)	PROFILE P4	500' -	FL085	155	Sea 500/min
13:24:03	(98)	13:25:25	(101)	RUN 7	FL060		250	Sea/Land
14:04:53				LAND AT FARNBOROUGH				

A260 04-JUN-93

GPS data  
Times:08:44:04-14:08:10



# HERCUL 04

EVENT Number	GMT	BAR	Location	Comment
04	10 07 36	31	2020	Run 1 / 10-07-25.
05	08 04	32	1840	Background 6000' 'wick' as fast as poss
06	08 31	33	1970	
07	09 02	34	1835	
08	09 30	35	1905	
09	10 11	36	1894	
10	10 44	37	1842	
11	11 18	38	1840	
12	11 48	39	1844	
13	12 19	40 (26)	1842	
16	17 09	41	1945	Run 2 / 10-16-57
17	17 32	42	1953	E coast of Cuthren 500'
18	18 00	43	1950	
19	18 23	44	1940	sample as far as possible
20	19 00	45	1945	
21	19 38	46	1936	
22	20 15	47	1940	
23	21 13	48	1952	
24	22 06	49	1960	
25	22 00	50	1964	
28	10-32-10	51	2004	Run 3 / 10-32-00 N Coast of Cuthren
29	10 34 31	52	2011	O Sutherland 500'
30	10 37 06	53	1890	
31	10 38 48	54	1880	1 bay every 2 mins (ask Andrew for ETA at end of run)
32	10 39 53	55	1875	
34	10 41 36	56	1919	
35	42 40	57		
36	43 49	58	1881	
37	45 40	59	1980	
38	47 05	60	1890	

EVENT	RMT	BAG	LOCATION	Comments
41	10 52 44	61	1884	RUN 4/10-32-17 West Coast of Sutherland 500'
42	55 03	62	1880 IN RAIN.	
43	58 01	63	1920	1 bag every 2 mins
44	11 01 00	64	1880	
45	04 01	65	1870	
46	07 01	66	1878	
48	10 01	67	1952	
49	13 01	68	1975	
50	16 57	69	1907	
51	17 04	70	<del>1838</del> 1875	
59	12 16 34	71	1842	RUN 5. 12-16-34 6000' off E coast 'Newcastle'
60	17 10	72	1837	
61	17 34	73	1835	Just sampling
62	18 01	74	1838	
63	18 32	75	1852	
68	12 30 28	76	2090	RUN 6. 12-30-28 E coast 500'
69	31 37	77	2052050	
70	33 00	78	2015	1 bag every 2 mins stop fill bags slow
71	34 35	79	2000	
72	36 10	80	2015	
73	37 45	81	1950	
74	39 20	82	1935	
75	40 55	83	1930	
76	42 30	84	1948	
77	44 05	85	1971	
78	45 40	86	1948	
79	47 15	87	1930	
80	49 00	88	<u>Blank</u>	
81	51 00	89	1928	
82	53 00	90	1930	

EVENT	GMT	BAG	LOCATION	
83	55 00	91	1920	
84	57 00	92	2000	
85	59 00	93	1910	E coast
86	13 01 00	94	1887	YORKS - LINES
87	13 03 00	95	1880	500'
88	13 05 00	96	1865	
89	13 07 00	97	1918	
90	13 09 00	98	1458	
91	11 00	99	1848	
95	13 22 33	100	1839	RUN 7/
96	13 23 13			
97	24 43	27	?	
		28	1867	
99	24 20	29	1847	5000' at end of
100	24 31	30	1843	profile after E coast <del>sea</del>
				measurements